

US Army Corps
of Engineers
St. Paul District

Implementation of Habitat Restoration and Protection Projects on the Upper Mississippi River System 2002 New Orleans, LA

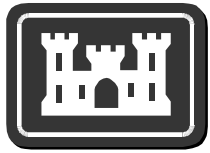
Kari Layman, St. Paul District



US Army Corps
of Engineers
St. Paul District

Upper Mississippi River System (UMRS)



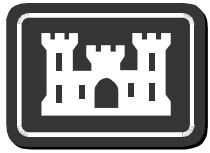


US Army Corps
of Engineers
St. Paul District



The UMRS Environmental Management Program





US Army Corps
of Engineers
St. Paul District

Partnership

US Fish and Wildlife Service

US Geological Survey

State of Illinois

State of Iowa

State of Wisconsin

State of Minnesota

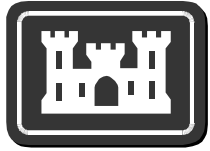
State of Missouri

**UMR
Basin Association**



**US Corps of Engineers
St. Paul - Rock Island - St. Louis**

Public



US Army Corps
of Engineers
St. Paul District

Habitat Restoration and Protection Projects



Islands



Control Structures



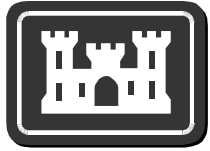
Water Level Management



Dredging



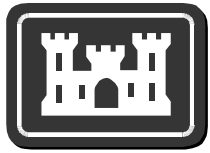
Bank Stabilization



US Army Corps
of Engineers
St. Paul District

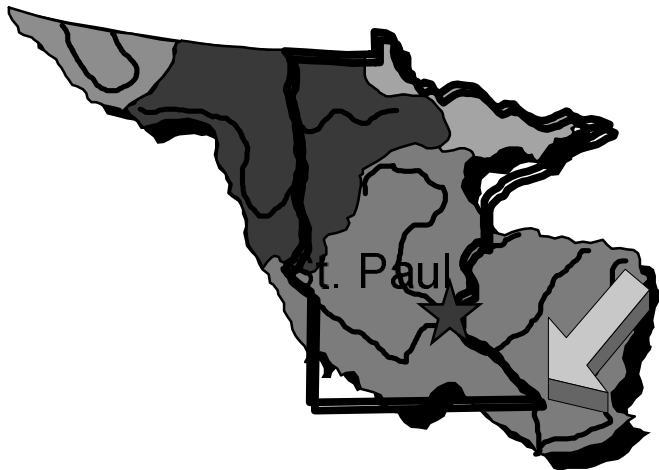
Habitat Restoration and Protection Projects

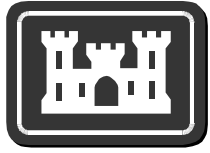
	Total Program	St. Paul District
Completed	33	21
Under Construction	10	1
Planning/Design	17	9



US Army Corps
of Engineers
St. Paul District

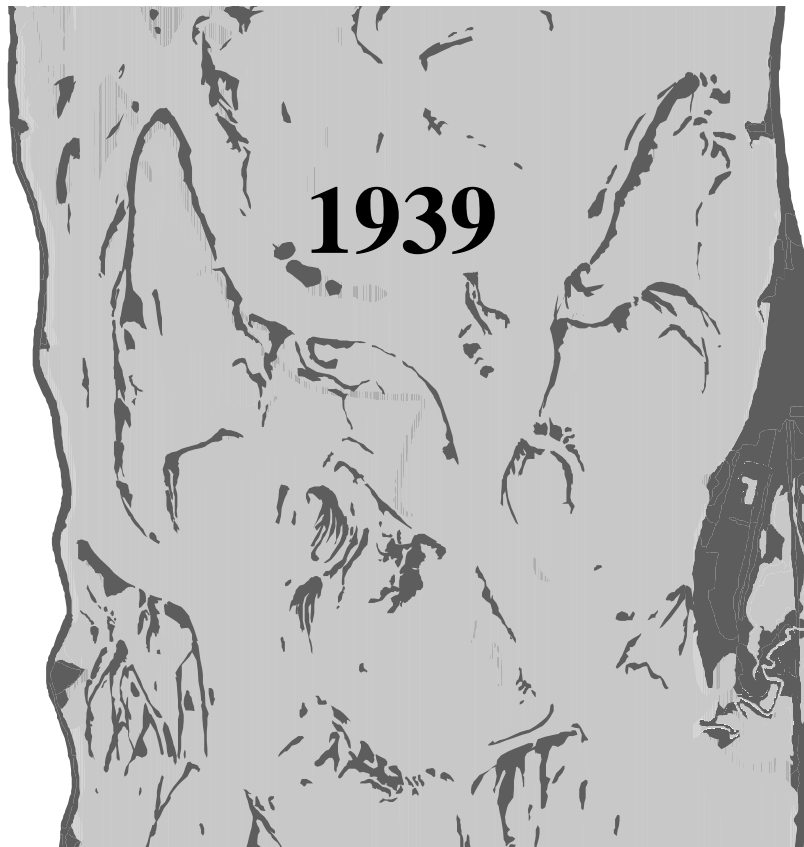
Pool 8 Islands, WI

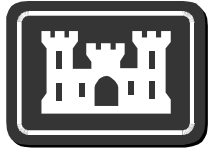




US Army Corps
of Engineers
St. Paul District

Island Erosion





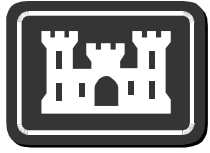
US Army Corps
of Engineers
St. Paul District

Pool 8 Islands Phase I Stage 1



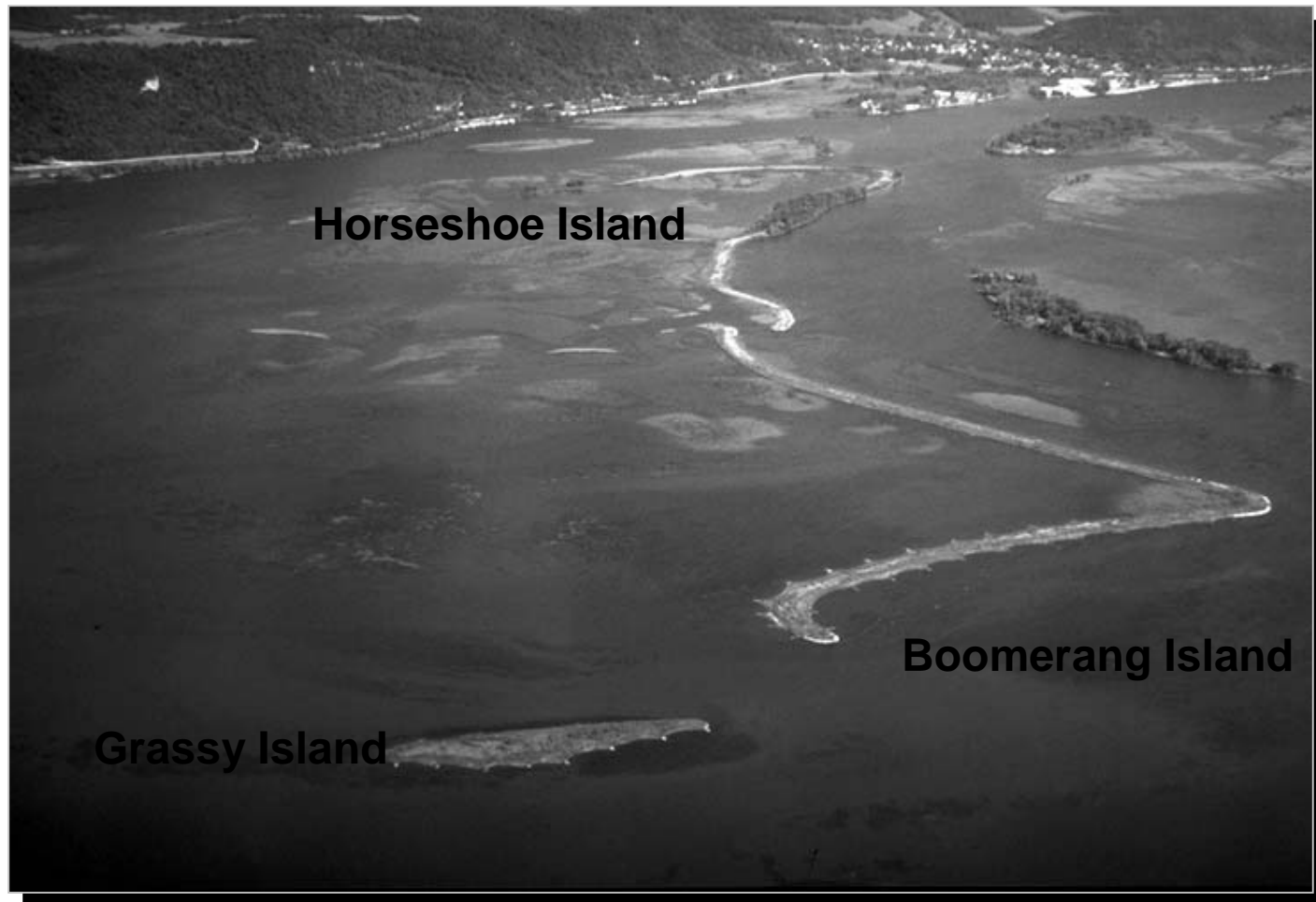
Horseshoe Island





US Army Corps
of Engineers
St. Paul District

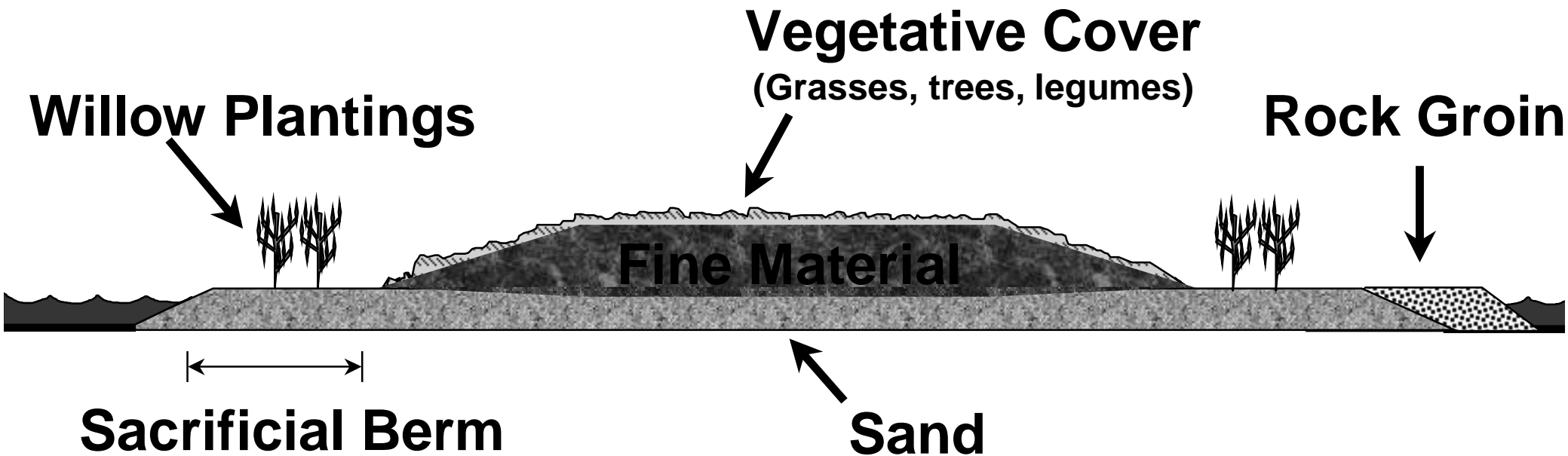
Pool 8 Islands Phase I

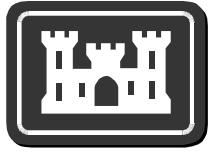




US Army Corps
of Engineers
St. Paul District

Typical Island Cross Section

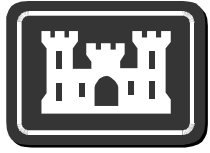




US Army Corps
of Engineers
St. Paul District

Construction Method

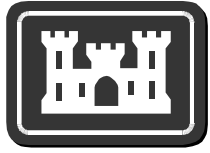




US Army Corps
of Engineers
St. Paul District

Construction Statistics

- **A linear foot of island contains 25 cubic yards of dredged material**
- **Material split is 75% sand, 25% fines**
- **Cost is \$250 to \$300 per foot**



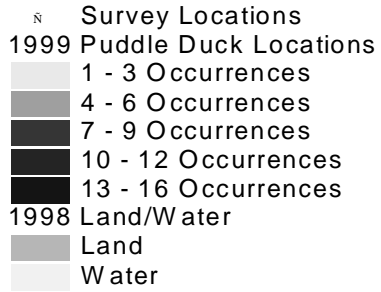
US Army Corps
of Engineers
St. Paul District

Pool 8 Islands Phase II

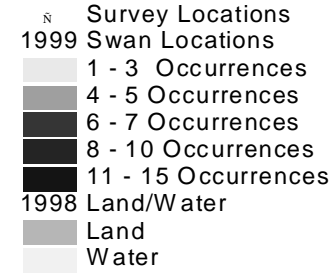
Stoddard



1999 Lower Pool 8 Waterfowl Ground Surveys - Puddle Ducks

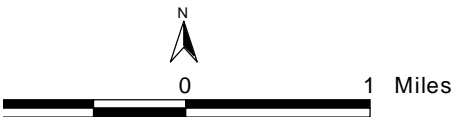


1999 Lower Pool 8 Waterfowl Ground Surveys - Tundra Swans



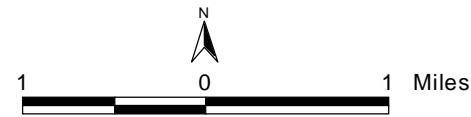
The survey was conducted 20 times during the fall season - twice weekly on randomly chosen days and times. The 1999 route had 11 stops on the west side of the pool from Lock and Dam 8 to Brownsville, Minnesota along Hwy. 26, and 2 stops along Hwy. 35 on the east side. Binoculars and a spotting scope were used to estimate the number of each species of waterbird seen at a specific stop. Numbers were recorded on a data table and the locations and shapes of the waterbird rafts were drawn on a map on the back of the datasheet. The waterbird numbers were entered into a digital database, and the raft locations were digitized and analyzed using ArcView.

The survey was conducted 20 times during the fall season - twice weekly on randomly chosen days and times. The 1999 route had 11 stops on the west side of the pool from Lock and Dam 8 to Brownsville, Minnesota along Hwy. 26, and 2 stops along Hwy. 35 on the east side. Binoculars and a spotting scope were used to estimate the number of each species of waterbird seen at a specific stop. Numbers were recorded on a data table and the locations and shapes of the waterbird rafts were drawn on a map on the back of the datasheet. The waterbird numbers were entered into a digital database, and the raft locations were digitized and analyzed using ArcView.



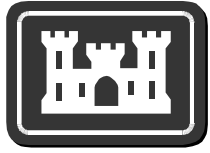
Upper Mississippi River
National Wildlife
and Fish Refuge

Questions regarding this study should be directed to Lara Hill,
Wildlife Biologist at the La Crosse District of the
Upper Miss. Refuge. Phone: (608) 783-8406. (2/29/2000)



Upper Mississippi River
National Wildlife
and Fish Refuge

Questions regarding this study should be directed to Lara Hill,
Wildlife Biologist at the La Crosse District of the
Upper Miss. Refuge. Phone: (608) 783-8406. (2/29/2000)



US Army Corps
of Engineers

St. Paul District

Shoreline Stabilization

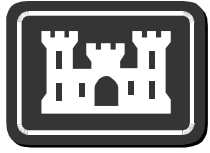
- **Riprap**
- **Biotechnical**
 - **Groins**
 - **Off-Shore Rock Mounds**
- **Vegetation**



US Army Corps
of Engineers
St. Paul District

Riprap





US Army Corps
of Engineers
St. Paul District

Design Innovations

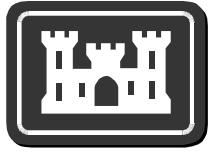




US Army Corps
of Engineers
St. Paul District

Vegetation

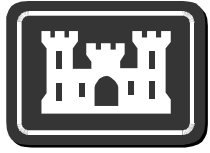




US Army Corps
of Engineers
St. Paul District

Stable Shoreline

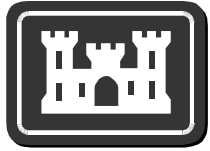




US Army Corps
of Engineers
St. Paul District

Stable During Floods

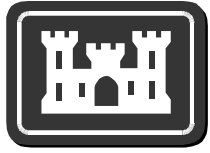




US Army Corps
of Engineers
St. Paul District

Ice Damage





US Army Corps
of Engineers
St. Paul District

Off-Shore Rock Mound

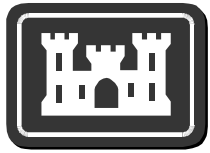




US Army Corps
of Engineers
St. Paul District

Lake Onalaska Islands



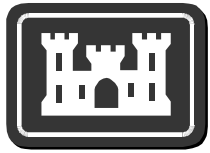


US Army Corps
of Engineers
St. Paul District

Polander Lake, MN



10 October 2000

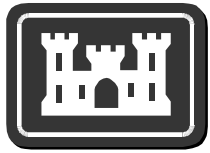


US Army Corps
of Engineers
St. Paul District

Polander Lake, MN

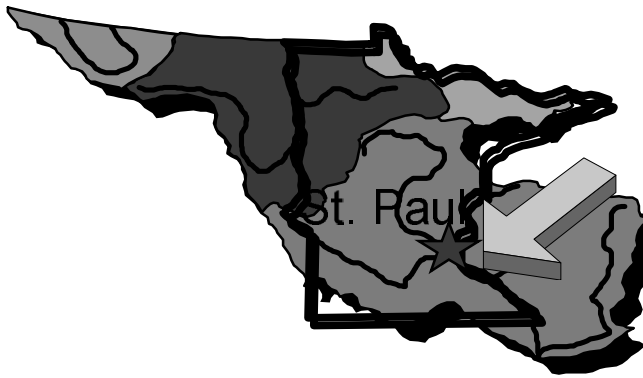
Fine Material Placement

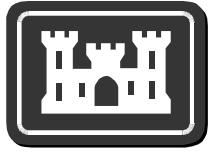




US Army Corps
of Engineers
St. Paul District

Finger Lakes, MN



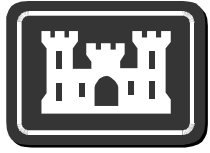


US Army Corps
of Engineers

St. Paul District

Habitat Needs Assessment

- **Technically sound management framework**
- **Identify habitat needs**
- **Tool to identify & prioritize habitat projects**
- **Scientific basis for project selection**



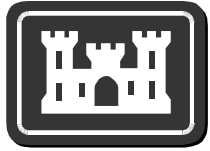
US Army Corps
of Engineers
St. Paul District

Acknowledgements

USACE – St. Paul District

Don Powell, Project Manager

Jon Hendrickson, Hydraulic Engineer



US Army Corps
of Engineers
St. Paul District

Environmental Management Program

Web Sites

www.mvp.usace.army.mil

www.mvr.usace.army.mil

www.umescc.usgs.gov

